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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,147	06/20/2001	Takeshi Aikiyo	FP 672- US(CIP)/PCT	5121

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EXAMINER

JACKSON, CORNELIUS H

ART UNIT PAPER NUMBER

2828

DATE MAILED: 11/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/884,147

Applicant(s)

AIKIYO ET AL.

Examiner

Cornelius H. Jackson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.


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Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claim 1 is indefinite since it recites "a semiconductor laser module" comprising "a semiconductor laser element". This is indefinite since "a semiconductor laser module" and "a semiconductor laser element" are/can be viewed as being the same and therefore being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: those which make-up the semiconductor laser element. Claims 2-24 are rejected since they depend on indefinite claim 1.
5. Claim 21 recites the limitation "the first substrate" in line 7 of the claim. There is insufficient antecedent basis for this limitation in the claim.

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Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

7. Claims 1-11, 16-27, 29-32 and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Aikiyo (6385222). Aikiyo discloses a semiconductor laser module **Figs. 1-4** comprising, a semiconductor laser element **2**; a thermo-module **5** for adjusting the temperature of the semiconductor laser element **2** in dependence upon an amount of current flowing into said thermo-module **5**; and, at least one of an overcurrent limiting circuit **20** to suppress an overcurrent flowing into the thermo-module **5** and an overvoltage limiting circuit to suppress application of an overvoltage across said thermo-module, **see abstract and col. 7, line 24-col.12, line 12.**

Regarding claim 2, Aikiyo disclose an optical fiber **3** optically coupled for receiving laser light emitted from the semiconductor laser element **2**.

Regarding claim 3, Aikiyo disclose a reverse current flow prevention circuit for preventing current from flowing into said thermo-module in a direction opposite to that of a drive current of said thermo-module **5**, **see col. 7, lines 51-col. 8, line 34.**

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Regarding claims 4 and 5, Aikiyo disclose the surge suppression circuit comprises a diode disposed in series with said thermo-module and a surge suppression circuit for preventing surge current from flowing into said thermo-module, **see col. 4, lines 25-39.**

Regarding claim 6, Aikiyo disclose the thermo-module **5** comprises at least an element for alternatively heating and cooling in dependence upon a direction of current flowing therein, and wherein the overcurrent limiting circuit is electrically coupled with the at least an element to divert current flowing thereto and oriented for causing heating, **see col. 1, lines 31-38, col. 6, lines 16-34 and col. 7, line 51-col. 8, line 34.**

Regarding claim 7, Aikiyo disclose the overcurrent limiting circuit includes a diode **2** disposed serially to the thermo-module **5** and oriented for allowing current to flow therethrough when the flowing current is oriented in a direction for causing cooling of thermo-module **5**; and a current limiting circuit element **20** coupled in parallel to the thermo-module **5**, **see Figs 1-3.**

Regarding claim 8, Aikiyo disclose the overcurrent limiting circuit includes a capacitor disposed in a bypass circuit parallel to the thermo-module, **see col. 9, lines 30-40.**

Regarding claims 9 and 10, Aikiyo disclose the overcurrent limiting circuit includes: a bypass channel between an upstream side and a downstream side of the thermo-module for bypassing the thermo-module; and a diode disposed within the bypass channel and oriented for allowing current to flow therethrough when the flowing current is oriented in a direction for causing heating of the thermo-module; wherein in

use circuit elements within the bypass channel and the diode provide an overcurrent limiting circuit to relieve the flow of an overcurrent in the direction for causing heating in the module-module, wherein the overcurrent limiting circuit includes a resistor disposed within the bypass channel serially to the diode, **see col. 7, line 27-col. 8, line 17.**

Regarding claim 11, Aikiyo disclose a surge suppression circuit in parallel to the bypass path for preventing surge current from flowing into said thermo-module, **see rejection to claim 8 above.**

Regarding claim 16, Aikiyo disclose a package **4** for storing therein the semiconductor laser element **2**, the thermo-module **5**, and at least part of the optical fiber **3**, the thermo-module **5** being mounted on a first plate **4a** of the package **4**, wherein the thermo-module **5** comprises a first substrate **5b** adjacent the first plate **4a**, a second substrate **5c** and a Peltier element **5a** disposed therebetween; wherein the semiconductor laser element **2** is disposed on the second substrate **5c** and thermally connected to said thermo-module **5** and wherein the overcurrent limiting circuit **20** is disposed on at least one of the first substrate **5b** and the first plate **4a**.

Regarding claim 17, Aikiyo disclose the thermo-module is arranged in such a manner that the first substrate is extended relative to the second substrate, and comprising a first conductor pattern and a second conductor pattern of said thermo-module disposed on an extended portion of the first substrate and wherein one end side of said overcurrent limiting circuit is coupled to said first conductor pattern and the other end side of said overcurrent limiting circuit is coupled to said second conductor pattern, **see Figs 1-4.**

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Regarding claim 18, Aikiyo disclose at least another Peltier element between the first substrate and second substrate; an optical fiber; and a lens for focusing laser light emitted from the semiconductor laser and for directing said laser light into the optical fiber, wherein said lens is thermally connected by a thermally melting connection material to the second substrate of said thermo-module, **see col. 4, lines 40-54.**

Regarding claim 19, Aikiyo disclose a package having a through hole communicating from the inside of the package to the outside thereof, an optical fiber supporting member disposed within the through hole; wherein an end portion side of the optical fiber is for being introduced from the outside of said package into the inside thereof via a through hole provided in said optical fiber supporting member, and wherein the first substrate is thermally isolated from said optical fiber supporting member, **see col. 11, lines 4-30.**

Regarding claim 20, Aikiyo disclose a lensed optical fiber in which a lens is formed at the tip end portion onto which laser light is incident, **see claim 7.**

Regarding claim 21, Aikiyo disclose a package **4** having a through hole **4c** communicating from the inside of the package **4** to the outside thereof for accommodating the semiconductor laser element **2** and the thermo-module **5**; an optical fiber supporting member **29** disposed within the through hole **4c**; wherein an end portion side of an optical fiber **3** is for being introduced from the outside of said package **4** into the inside thereof via a through hole **4c** provided in said optical fiber supporting member **29**, and wherein the first substrate is thermally isolated from said optical fiber supporting member **29**.

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Regarding claim 22, Aikiyo disclose a lensed optical fiber in which a lens is formed at the tip end portion onto which laser light is incident, **see rejection to claim 20 above.**

Regarding claim 23, Aikiyo disclose a package for storing therein the semiconductor laser element, the thermo-module, and at least part of the optical fiber, the thermo-module being mounted on a first plate of the package, wherein the thermo-module comprises a first substrate adjacent the first plate, a second substrate and a Peltier element disposed therebetween; wherein the semiconductor laser element is disposed on the second substrate and thermally connected to said thermo-module and wherein the overcurrent limiting circuit is disposed on at least one of the first substrate and the first plate, **see corresponding claim rejections above.**

Regarding claim 24, Aikiyo disclose the thermo-module is arranged in such a manner that the first substrate is extended relative to the second substrate, and comprising a first conductor pattern and a second conductor pattern of said thermo-module disposed on an extended portion of the first substrate and wherein one end side of said overcurrent limiting circuit is coupled to said first conductor pattern and the other end side of said overcurrent limiting circuit is coupled to said second conductor pattern, **see corresponding claim rejections above.**

Regarding claims 25-27, 29 and 30, the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, the rejection used against the device, stands for the method as well.

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Regarding claims 31, 32 and 35, the recitation that a transmission device or a thermo-module has not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951), **see corresponding claim rejections above.**

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-15, 28, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aikiyo (6385222). Aikiyo, as applied to claims 1-11, 16-27, 29-32 and 35 above, teach all the stated limitations even wherein in use the bypass channel, resistor and diode provide an overcurrent limiting circuit to relieve the flow of an overcurrent in the heating direction into said thermo-module, **see col. 7, lines 48-50**. Aikiyo fails to teach that the diode is a zener diode. It would have been obvious to one of ordinary skill in the art at the time the invention was made to any type of semiconductor laser device depending on the desired output, size, cost and reliability, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claims 13-15, 28, 33 and 34, Aikiyo teach all the stated limitation, **see corresponding claim rejections above.**

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cornelius H. Jackson whose telephone number is (703) 306-5981. The examiner can normally be reached on 8:00 - 5:00, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.



chj

November 4, 2002



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